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#### ZAVADSKIY, V.B.

Best specialists of the State Institute for the Design, Planning and Study of Highways. Avt.dor. 28 no.10:18,20 0 165. (MIRA 18:11)

1. Glavnyy inzhener Gosudarstvennogo proyektnogo instituta po izyskaniyam i proyektirovaniyu avtomobil'nykh dorog.

L 35540-66 EWT(1) IJP(c) WW ACC NR: AP6016829 (N)SOURCE CODE: UR/0046/66/012/002/0192/0205 AUTHOR: Zavadskiy, V. Yu. ORG: Acoustics Institute, AN SSSR, Moscow (Akusticheskiy institut AN SSSR) TITLE: Concerning certain problems of diffraction occurring in liquid and elastic SOURCE: Akusticheskiy zhurnal, v.12, no. 2, 1966, 192-205 TOPIC TAGS: acoustic diffraction, wedge body, acoustic property ABSTRACT: The author considers the two-dimensional problem of diffraction of a plane harmonic wave in a liquid wedge of arbitrary aperture angle, one of whose faces is in contact with another liquid wedge having an aperture angle which is a multiple of  $\pi/2$ . Both wedges have a common edge and are characterized by different acoustic parameters The acoustic pressure in each wedge is represented by a Sommerfeld integral and the diffraction problem reduces to a determination of the Sommerfeld transformats. A system of functional equations is investigated for the latter. A method is proposed for solving the system, based on a certain generalization of the Laplace transformation. The same method is used to obtain the solutions of the functional equations corresponding to diffraction in a wedge having both faces in contact with wedges whose aperture angles are multiples of  $\pi/2$ , in a liquid wedge lying on an elastic half-space, and also when four rectangular wedges make contact with their faces and have a common edge. [Author's abstract]. The author thanks G. D. Mc and consultation on questions considered in the work. The author thanks G. D. Malyuzhinets for useful advice Orig. art. hus: 52 formulas. Card 1/2

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ZAVADSKIY. Vyacheelov Svystoslavovich, inzhener; IVAHOV, O.M., kendidat
tekhnicheskikh nauk, nauchnyy redaktor; B&GAK, B.A., redaktor;
izdatel'stva; SMOL'JAKOVA, M.V., tekhnicheskiy redaktor

[Autoclave gas concretes; their properties, manufacture and use]
Avtoklavnye gazobetony; ikh svoistva, proizvodstvo i primenenie,
Moskva, Gos.ind-vo lit-ry po stroit. i arkhit., 1957. 154 p.

(Lightweight concrete)

(MIRA 10:9)

TAVADSLIVe "Feerbarday Symatos Latovich; IVANOV, O.M., kendidat tekhnicheskikh nauk, nauchnyy redaktor; BEGAK, B.A., redaktor izdatel'stva; SMOL'YAKOVA, M.V., tekhnicheskiy redaktor

[Air-entrained concrete; properties, mamufacture and use] Avtoklavnye gasobetony; ikh svoistva, proisvodstvo i primenenie.

Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 1.54 p.

(Air-entrained concrete) (MIFA 10:9)

#### ZAVADSKIY, V.V.

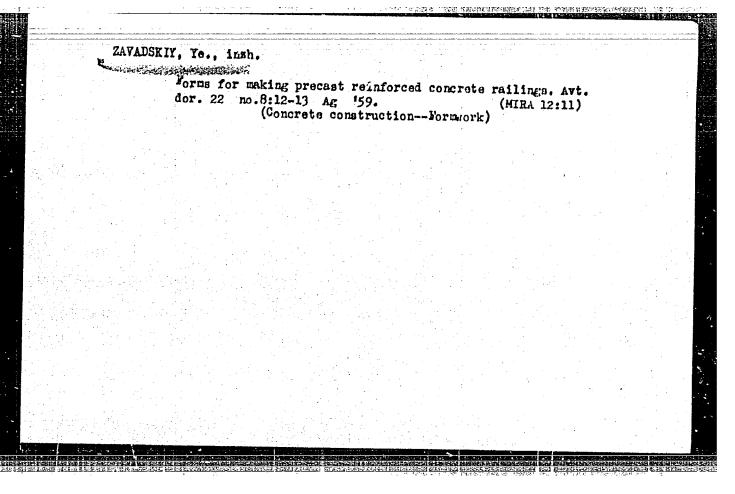
Mathods for improving the economic indices of the heat supply to the Omsk Patroleum refinery. Nefteper. 1 neftekhim. no.2: 12-14 \*64. (MIRA 17:8)

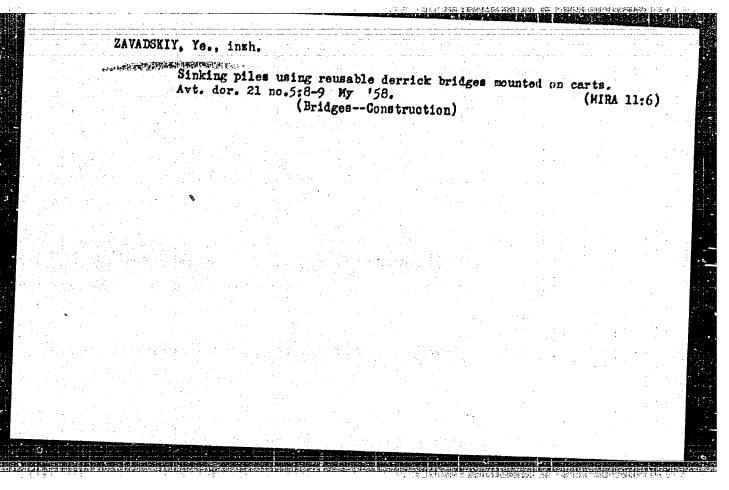
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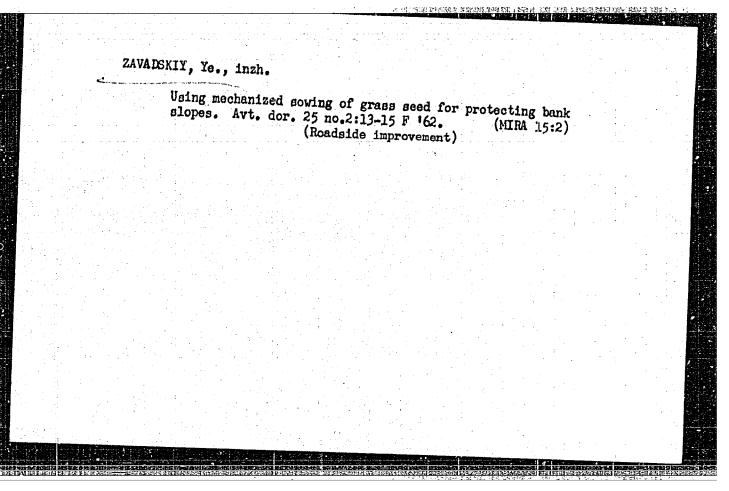
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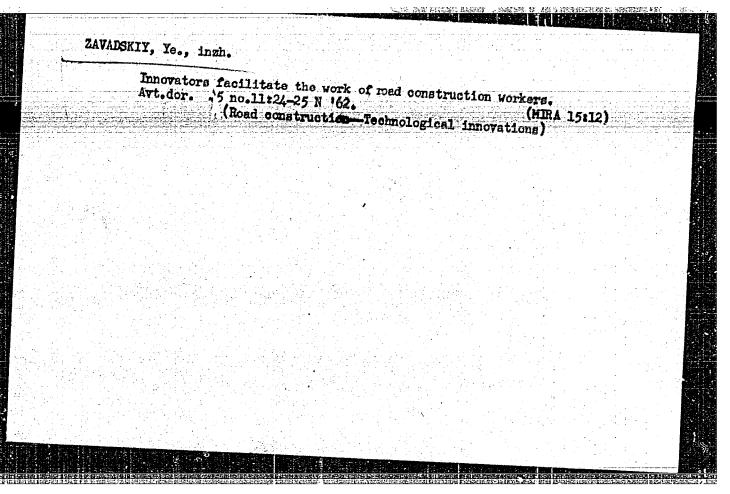
MAZUROV, D. Ya.; ZAVADSKI			$+\frac{4}{8}(2^{-1})^{-1}$	
Cement Kilns Increasing the output of a	utomatic shaft furnaces.	TSement 19, No.	1, 1953.	
		Ju	me <b>1953.</b>	Unclassified
9. Monthly List of Russi	an Accessions, Library o	f Congress,		

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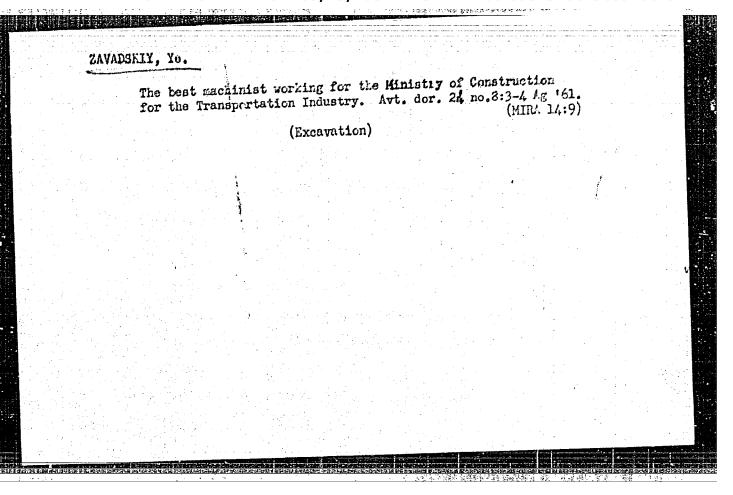








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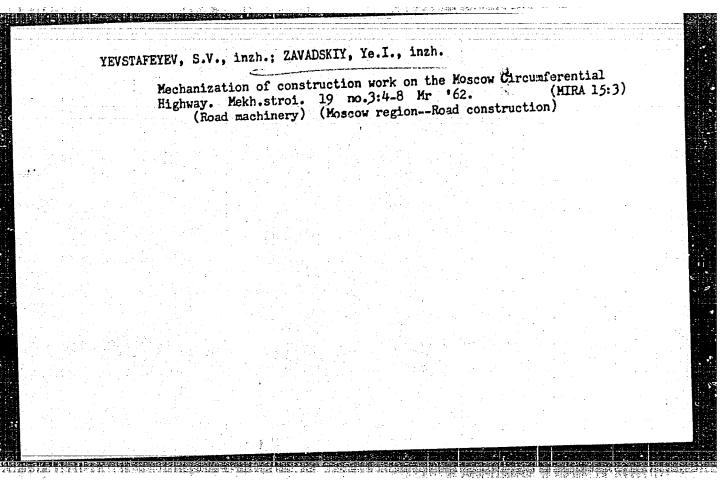


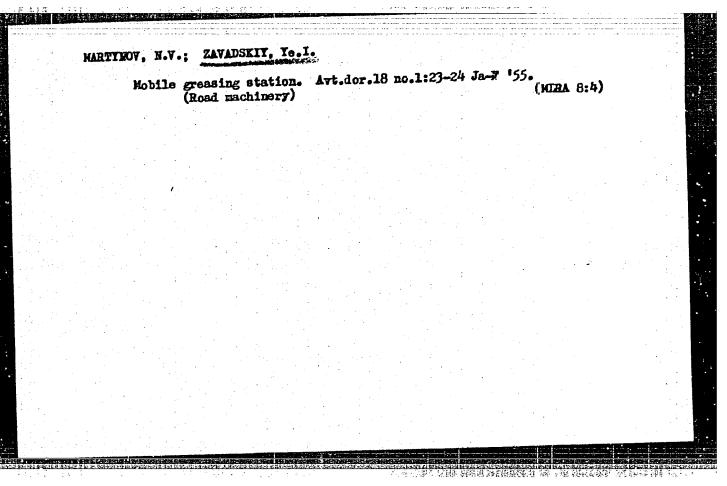
ZAVADSKIY, YE. D.

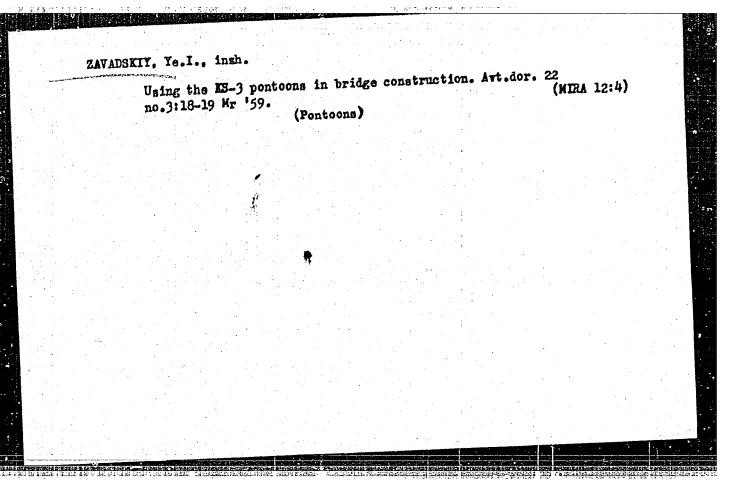
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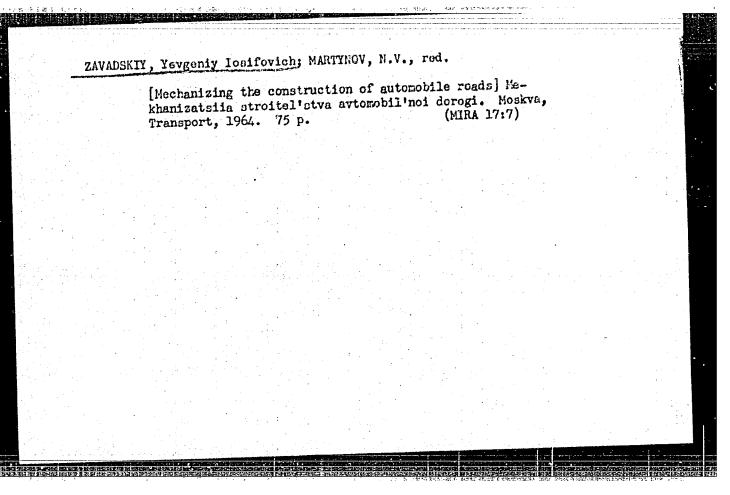
ZAVADSKIY, YE. D. — "Selection and Evaluation of Functional Tests of the Cardiovas-cular System on the Basis of Medical Observations on Young Wrestlers and Boxers. (Experimental Investigation)." State Central Order of Lenin Inst of Physical Culture imeni I. V. Stalin, Moscow, 1955. (Dissertation For the Degree of Candidate in Medical Sciences).

SO: Knishnava letopis'. No. 37. 3 September 1955









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80V/103-59-10-6/12 14(2) Zavadskiy, Ye.I., Engineer AUTHOR: Sixty-ton Sluice-Gate Crane for Block Assembling TITLE: Mekhanizatsiya strcitel stva, 1959, Nr 10, pp 20-23 (USSR) PERIODICAL: Claydorstroy has started using sluice-gate cranes which require no gantry and are capable of moving structural elements length- and crosswise. Cranes of this type are produced by the Darnitskiy Plant of Glavdorstroy. The metal structure of the crane consists of a 70-m long frame resting on three supports. The frame has a triangular form, 2000 mm high and 5,600 mm wide. The dismantled crane can be shipped on 8 RR platforms of 20-ton capacity each, or on 30-34 trucks with trailers. The mechanical part of the crane comprises 2 load hoisting mechanisms, 2 mechanisms for crosswise transportation, I mechanism for lengthwise transportation of carriages and 1 mechanism for shifting the crane. The hoisting mechanisms are installed on the carriages of crosswise transportation, each being equipped with a pulley block and a 3-ton electric winch. The lengthwise movement of the carriages is brought about by 4 rollers running on the lower girdle of the frame. The shifting mechanism of the crane consists of 2 two-wheel power-driven carriages. Card 1/2

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#### "APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-0

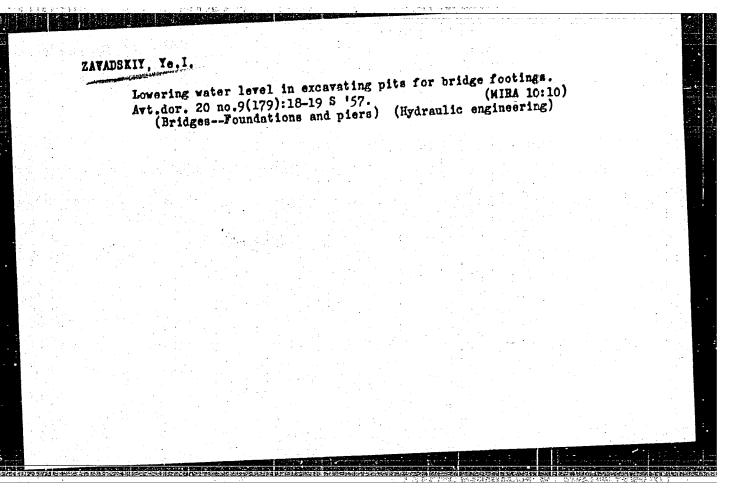
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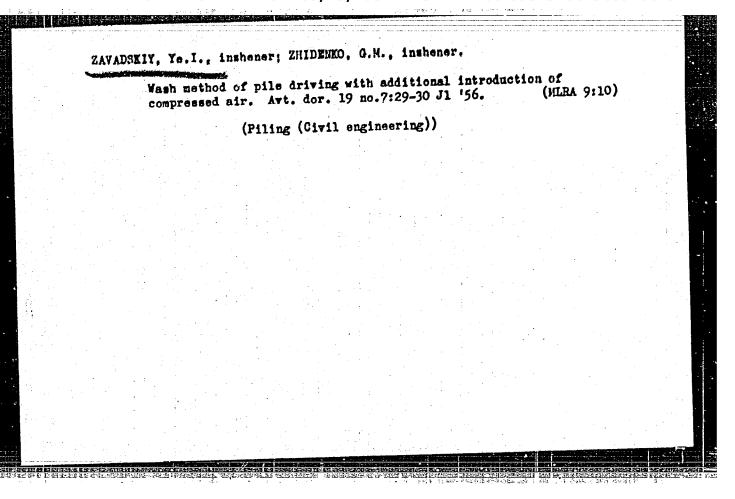
sov/100-59-10-6/12

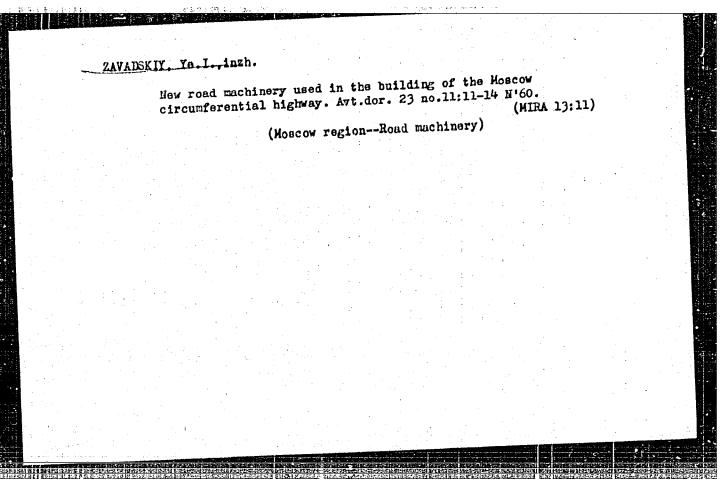
Sixty-ton Sluice-Gate Crane for Block Assembling

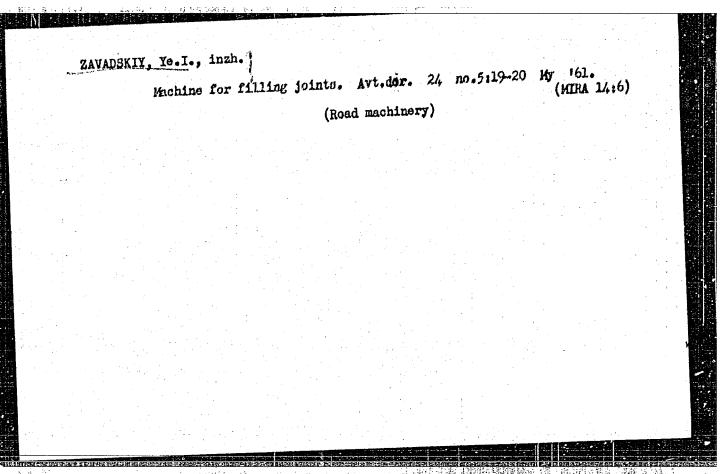
All mechanisms are controlled from the cabin located near the middle support. The assembling of the crane is done with the aid of the truck mounted crane K-51; equipped with a 12-m boom and a gartry with Q = 60 tons. The article gives the technical characteristics of the crane and describes the procedure of putting it up. To ensure perfect safety in the operation of the crane, it is necessary to observe strictly certain rules, which are listed in the article. In a table are shown the various operations necessary to be performed in the course of constructing a bridge section, the time required for each operation and the number of men needed. The experience gained in actual practice with the new sluice-gate cranes has revealed certain drawbacks of the trial models which are briefly enumerated in the article. There are 3 photos, 1 diagram and 2 tables.

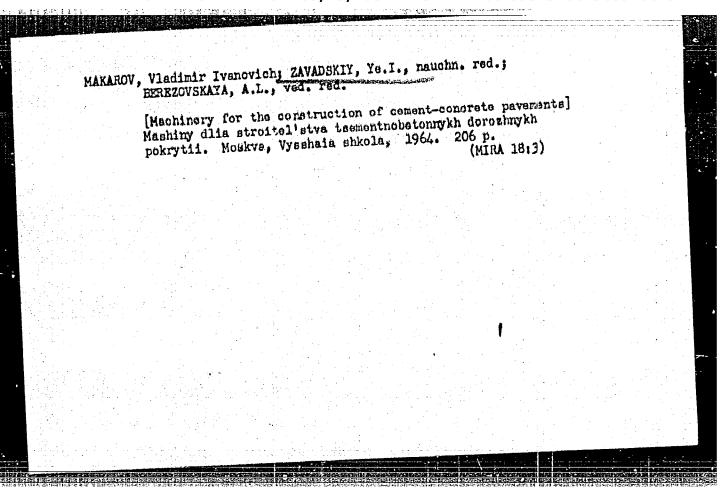
Card 2/2











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ZAVALIII, I.V.; SIIIMAIISKAYA, Yo.T.; SHIMAIISKIY, Yu.I.; Prinimali uchastiye:

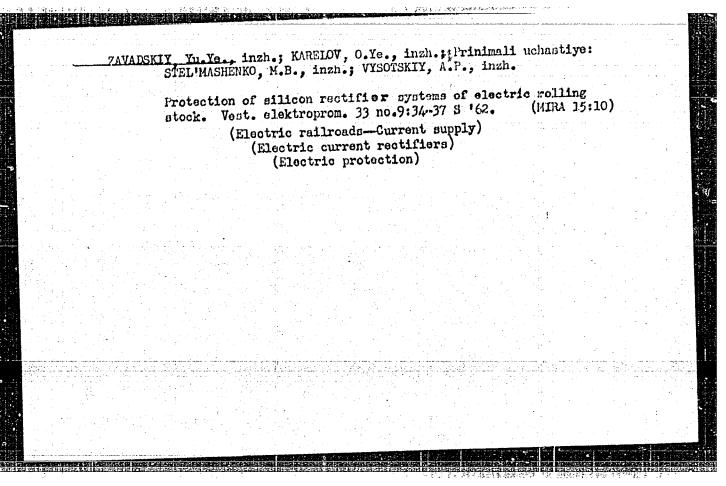
ARTYUKOVSKAYA L.M., student; KOVALENKO G.F., student; MICHAITOVA, Z./.,
student

Behavior of the density of the solution bonzene-propol alcohol near the critical point at the liquid - vapor boundary. Ukr. fiz. zhur. 9 no.5:491-496 Ny '64. (MIRA 17:9)

1. Kiyevskiy gosudaratvennyy universitet.

ZAVADSKIY, Yu.Ye., aspirant; KORMYSHEV, V.V., inzh.

Calculating short circuit currents in semiconductor rectifier systems of the rolling stock of electric railroads. Vest. TSNII MPS 23 no.6:5-9 '64. (NIRA 17:10)



Hall constant in p-Ge as a function of the magnetic field intensity.  Zhur. eksp. i teor. fiz. 40 no.4:1229-1231 Ap '61. (MIRA 14:7)
1. Institut fiziki metallov AN SSSR. (Hall effect) (GermaniumMagnetic properties)
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B/032/01/027/005/006/017 B130/B220

4.4300 AUTHORS: Zavadovskaya, Ye. K. and Treskina, M. N.

TITLE:

Conductivity measurement of solid dielectrics in a wide

temperature range

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 5, 1961, 569 - 572

TEXT: A method is described to study the dependence of the conductivity of solid dielectrics on temperature by means of a vacuum measuring cell. The temperature range is 140 to 700°C, the vacuum 10·10<sup>-5</sup> mm Hg. Alkali The temperature range is 140 to 700°C, the vacuum 10·10<sup>-5</sup> mm Hg. Alkali The temperature range is 140 to 700°C, the vacuum (NaCl and a 10 % molar halide crystals were used for these investigations (NaCl and a 10 % molar halide crystals were used for these investigations of the disturbing efsolid solution of KCl in KBr). In order to eliminate the disturbing efsect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in inert gas or in fect of oxidation by air at 700°C, the tests were made in i

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Conductivity measurement or ...

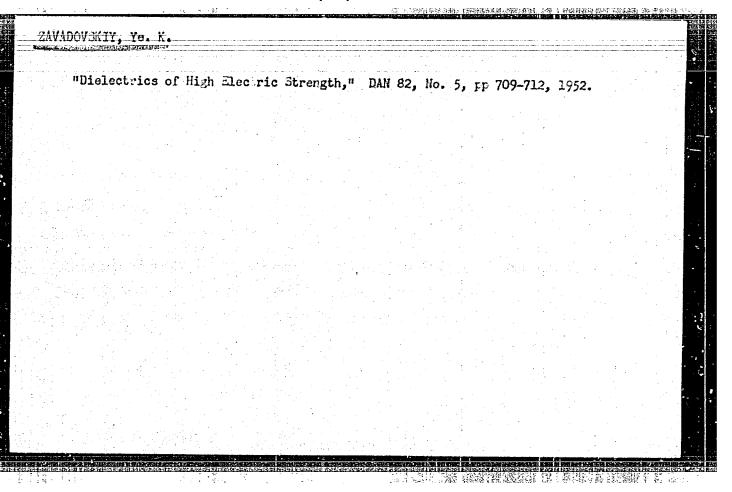
alumel thermocouples. The system of the electrodes is supported by a ceramic disk 9 fixed on 4 nickel prongs. The upper two disks are removable. Teflon plugs 10 isolate the feed wires against the brass base and ensure a good vacuum. The conductors of the thermocouples and oven spirals are enclosed in glass isolators of type NCW (ISSh) and melted into the brass base. Based on this design, a vacuum of the order of magnitude 1.10-5 mm. Hg was obtained without any discharge currents occurring. The measurements were made with well polished electrodes manufactured by dispersion of platinum in a discharged gas. Because of the increased conductivity at elevated temperatures it is not absolutely necessary to provide a guard ring (R. W. Ure, J. Chem. Phys., 26, 1363 - 1373 (1957); and Ewles and S. C. Zain, Proceedings of the Ray Soc., 1234, 243, 353 - 358 (1958)). The measurements made by the authors indicate that the conductivity increases due to surface currents, if one does not use a guard ring. The surface of the specimen influences the exactness of the measuring results considerably. Higher exactness and smaller variations are obtained for specimens with polished surfaces. If a potential is applied to the electrodes, the current intensity decreases rapidly, thus, it is difficult to determine the initial value of the intensity. For this reason, the authors made use of intensities approximating the residual current. Card 2/5

Conductivity measurement of...

S/032/61/027/005/006/017
B130/B220

4 figures and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to English-language publications read as follows: R. W. Ure, references to English-language publications and S. C. Zain, Proceedings J. Chem. Phys., 26, 1363 - 1373 (1957); Ewles and S. C. Zain, Proceedings of the Ray Soc., 1234, 234, 353 - 358 (1958).

ASSOCIATION: Tomekiy politekhnicheskiy institut im. S. M. Kirova (Tomsk Polytechnic Institute im. S. M. Kirov)



ZAVADOVSKIY, Yo. K.						
"Relation Between 82, No. 4, pp 565-566	Rupture Strength and	f Hobility of	Charges in a	Dielectric,"	DAN,	
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NRI AP6035665 (AN) SOURCE CODE: PO/0006/66/000/004/0315/0320 26

AUTHOR: Aldova, Eva; Zavadsky, Marian

ORG: Institute of Epidemiology and Microbiology, Prague (Zaklad Epidemiologii i

Mikrobiologii)

TITLE: Shigella sensitivity to antibiotics.

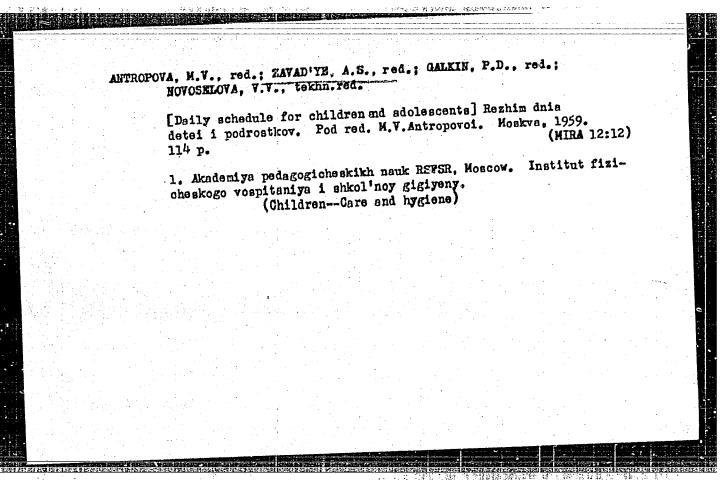
SOURCE: Medycyna doswiadczalna i mikrobiologia, no. 4, 1966, 315-320

TOPIC TAGS: antibiotic, sulfonamide, streptomycin, tetracycline, microbiology, epidemiology, Shigella, chloramphenicol, terramycin, antibiotic resistance, sulfonamide resistance

ABSTRACT: A comparison of 476 random-selected Shigella flexneri and sonnei strains, isolated in Czechoslovakia, Hungary, and Poland, showed that they possessed general resistance to the antibiotics chloramphenicol, streptomycin, terramycin, and tetracycline, and to sulfonamides. Of all strains tested and compared only four, while resistant to two antibiotics (one in Czechoslovakia to chloramphenicol and streptomycin, and three in Hungary and Poland to tetracycline and streptomycin), were sensitive to sulfonamides. All remaining strains were sulfonamide resistant.

Card 1/2

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thank Pro	d. Dr. K	. Lachowi	cz. State I	institute of H	vølene	in Wargay	ond Dr	בי	
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L 30016-66 EWP(v)/EWP(k)/EWP(h)/EWP(l) ACC NR. AP6020101 SOURCE CODE: CZ/0057/66/000/002/0084/0085 AUTHOR: Zarsky, Jiri (Engineer); Zavadsky, Jiri (Engineer) ORG: VZKG, Ostrava TITLE: Practical experience with sand blasting in the cold rolling mill of the Klement Gottwald Vitkovice Iron works SOURCE: Hutnik, no. 2, 1966, 84-85 TOPIC TAGS: cold rolling, pickling, hydrochloric acid ARSTRACT: The authors describe operation of a unit purchased from the Prench firm Sommener and Siason-Lohman. The unit does not romovo scale as much as is needed, and therefore the authors had to design a pickling unit as a second step of rust removing. The main difficulty with the plant is due to the fact that "V" bolts for the drives in the plant cannot be obtained in a satisfactory quality from Ozochoslovak production. Pickling was tried with 20% HOL at 18°C, but the finished product did not have a satisfactory appearance; now, 10% sulfuric acid is used at 60-70°C with satisfactory results. The authors found that operation of the sand blasting plant is 60% more expensive than the use of acid pickling. Orig. art. has: 2 tables. [JFRS] SUB CODE: 13 / SUBM DATE: none

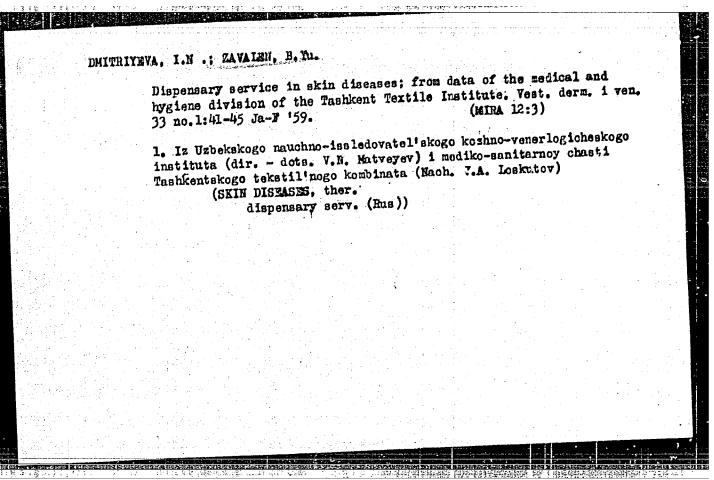
ZAVADZKIY\*KRASNOPOL'SKIY, S.P.; Fedotov, D.D., Docent

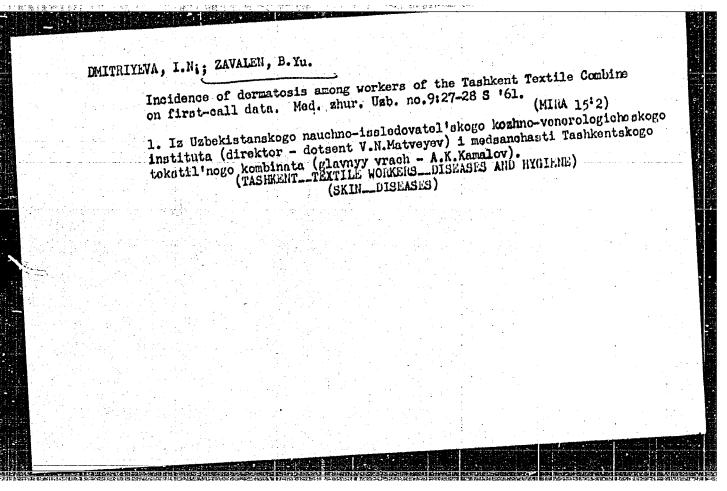
Psychiatry - History

From the past of Russian psychiatry, Zhur. nevr, 1 psikh.; 52 No. 6, 1952

Monthly List of Russian Accessions, Library of Congress, October, 1952 Unclassified

ZAVAKINI	1, R.A.		
	Space-time distribution of an ic the Northern and Southern Hemisp Geomag. 1 aer. 3 no.1:79-87 Ja-1	onsopheric disturbance in high latitud pheres after large chromospheric flare F 163. (MIRA 16:4)	es of
	1. Institut zemnogo magnetisma	, ionosfery i rasprostraraniya radiovo	ln 🗀
	AN SSSR.	(Magnetic storms)	





EXONDRASHIN, N.A., insh.; ZAVALEY, B.D.

Drive of a whipper with a centrifugal clutch. Masl.-zhir.pros. 26 no.9:41 S '60. (MIRA 13:9)

1. Blaggveshchenskiv meslozavod. (Blagoveshchensk (Amur Province)--Oll industries--Equipment and supplies)

34976 \$/080/62/035/002/017/022 D258/D302

// 2/40 // 22/0 AUTHORS:

Yakubchik, A. I., Smirnova, V. K. and Zavaley. V. M.

TITLE:

Determining structure regularity in lithium-pentadiene rubber by the character of the 1,4-addition

Zhurnal prikladnoy khimii, v. 35, no. 2, 1962, 405-408

TEXT: The authors investigated the oxidation-decomposition products of Li-pentadiene rubber ozonide to establish the type of ducts of Li-pentadiene rubber ozonides were dissolved in glacial acetic linkages formed during polyaddition. Chloroform solutions of the linkages formed during polyaddition were dissolved in glacial acetic rubber were ozonized. The ozonides were dissolved in glacial acetic rubber were ozonized with CH3COOOH and yielded, on standing, acids in acid, decomposed with CH3COOOH and yielded, on standing, acids in both crystalline and viscous states. The products were isolated and both crystalline and viscous states. The products were isolated and

both crystalline and viscous states. The products were isolated identified by distributive chromatography as methylsuccinic, dinethylsuccinic, succinic and acetic acids. These first 3 acids acmethylsuccinic, succinic and acetic acids. These first 3 acids acmethylsuccinic, succinic and acetic acids. These first 3 acids acmethylsuccinic, succinic and acetic acids. These first 3 acids accounted for 38.1% of the carbon skeleton of the rubber, while 1,2 counted for 38.1% of the carbon skeleton of the rubber, while 1,2 additions with propenyl groups were shown earlier to account for additions with propenyl groups were shown into 23.9% of methylanother 6.8%. The total of 38.1% breaks down into 23.9% of methylanother 6.8%.

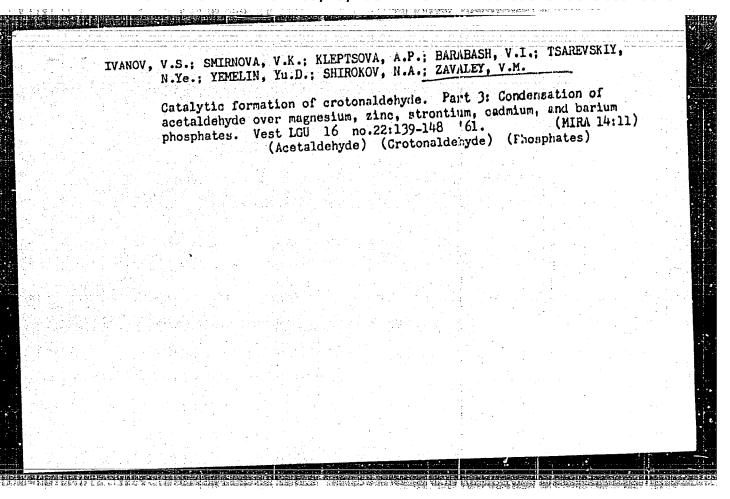
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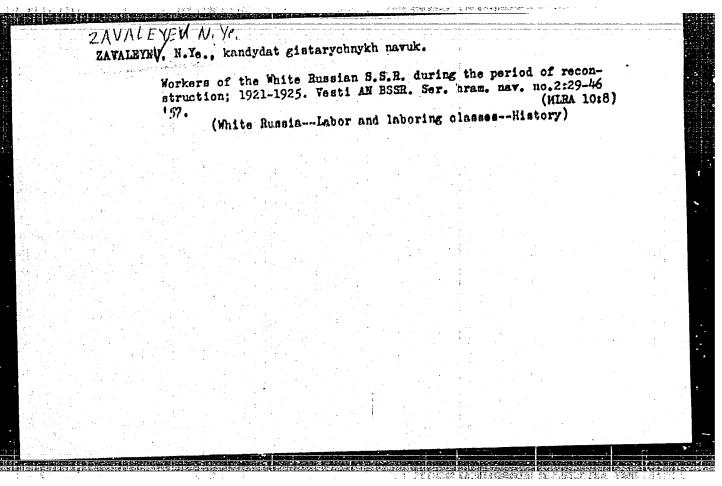
S/080/62/035/002/017/022
Determining structure regularity ... D258/D302

succinic acid formed by the breakdown of 1,4 - 1,4 additions: 6.2% of dimethylsuccinic acid from 1,4 - 4,1 additions; and 8.1% of succinic acid from 4,1 - 1,4 additions. There are 2 figures, 3 tables and 13 references: 5 Soviet-bloc and 8 non-Soviet-bloc. The references to the English-language publications read as follows: F. W. Staveley, Ind. Eng. Ch., 48, 778, (1956); H. Marshall and A. T. Cameron, Chem. Soc., 91, 1522, (1907).

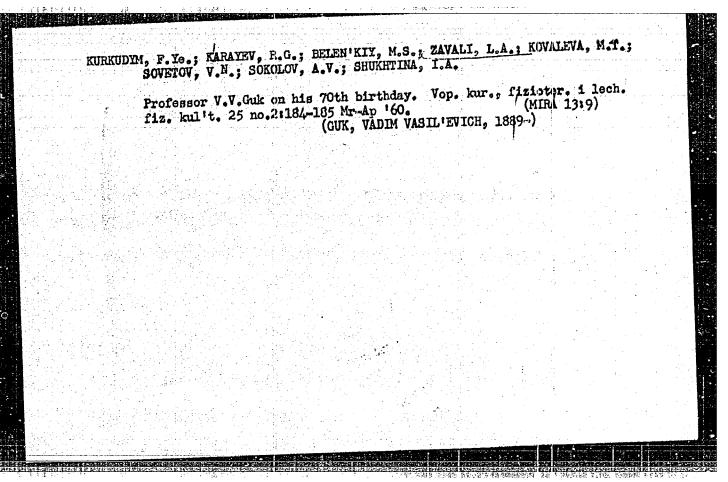
SUBMITTED: May 5, 1961

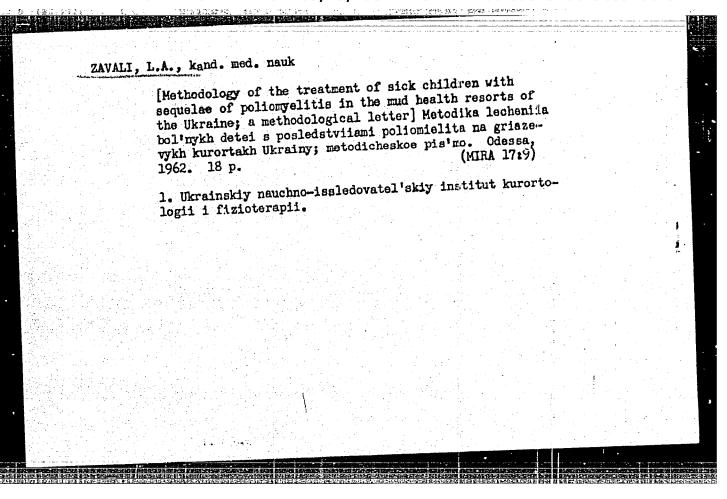
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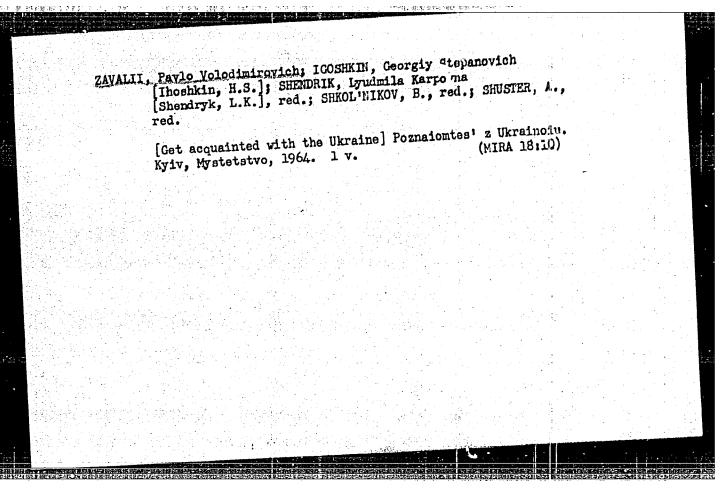




Protection for electric motors in cases of overloading of roller mills. Mukelev.prom. 24 no.3:27-28 Mr 159.  (MIRA 12:9)						
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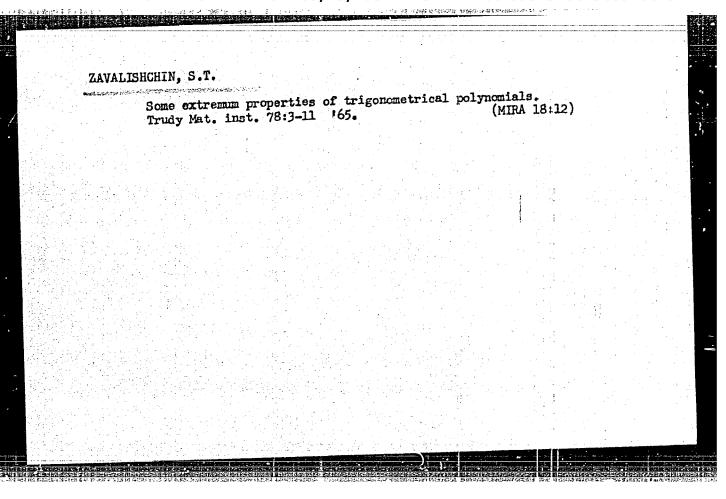
ZAVALIN, I.V.; SHIMANSKIY, Yu.I. [Shymans'kyi, IU.I.] Prinimali uchastiyes
ALTOKHIN, A.D., aspirent; VOLKOV, O.I., student

Density and concentration in the binary solution benzene--propyl alcohol near the liquid-wapor critical point. Ukr.
fiz. zhur. 9 no.10:1122-1133 0 164 (MIRA 18t1)

1. Kiyevskiy gosudarstvennyy universitet im. Shevchenko.

ZAV A	ALIN, I.V., A. C.
	Study of the properties of benzene in the critical state without admixture of air. Ukr. fiz. zhur. 10 no.2:235-237 F 665. (MIEA 18:4)
	1. Kiyevskiy gosudarstvennyy universitet im. Shevchonko.
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student; ZAVALIN, I Study of the density fiz. zhur. 7 no.8	w of benzene near th	he cricital point.	Ukr. (MIRA 16:1)
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L hhl39-66 EWP(d)/EMP(1) LUP(c) SOURCE CODE: UR/03/16/66/002/0(4/0571/0573_30 ACC NR. AP6023971	
AUTHOR: Zavalishchin, S. T.  ORG: Sverdlovsk Section, Mathematical Institute im. V. A. Steklov (Sverdlovskoye otdeleniye	3
matematicheskogo instituta)	
An optimal problem with single-cycle switching	
Toymar. Differentsial'nyye uravneniye, v. 2, no. 4, 1906, 511	
TOPIC TAGS: optimal automatic control, differential equation system	
ABSTRACT: For the case of a system of differential equations  (1) $\chi = Ar - ku$	
where A is a constant (n x N)-matrix; k an n-dimensional vector; u a scalar function; and  a	
$J = \int I(x) dt$ .	
where $f(x) = \frac{1}{k}(x, Fx)$ is a positive definite quadratic form, the control u, minimizing the where $f(x) = \frac{1}{k}(x, Fx)$ is a positive definite quadratic form, the control u, minimizing the functional (2), may be specified in the following manner. It is assumed that Ro $\lambda$ 1 < 0,	
Card 1/3	

ACC NR: AP6023971 then there exists a symmetric matrix V such that (3) VA + A'V = -Fand  $v(x) = \frac{1}{2}(x, Vx)$  is another positive definite quadratic form. The author then introduces the function (4:)  $\pi\left( x\right) =\left( \Pi,\,x\right) ,$ with  $\Pi = Vk$  and evaluates the total derivative of the function v(x) which because of Eq. (1) and Eqs. (3) and (4) becomes  $\dot{v} = -1 - \pi u$ . (6)Integrating Eq. (5) from 0 to  $\infty$  and using Eq. (2), the author obtains  $J = v(x_0) - P$ , where The establishment of the control specified above is then equivalent to finding a u which makes Eq. (6) a maximum. Chang Jen-Wei erroneously concluded in an earlier paper (Avtomatika i telemekhanika, 22, No. 12, 1601-1607, 1961) that the control satisfies the optimum problem. Since R. Bellman((Dynamic Programing) Dinamicheskoye

art. has: 27		ont conditions whi	ich mako the solu	ition of Eq. (7) o	orrect. Orig.	
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ZAVALISHIN. A.; HAMMYEV, S.; YOINOV, Yu.; PADOROV, S.; ELYKOV, N.; TIMUSHEV, A.

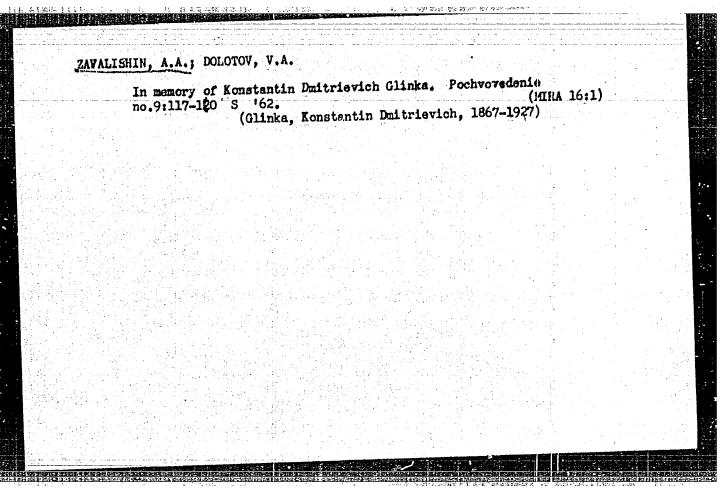
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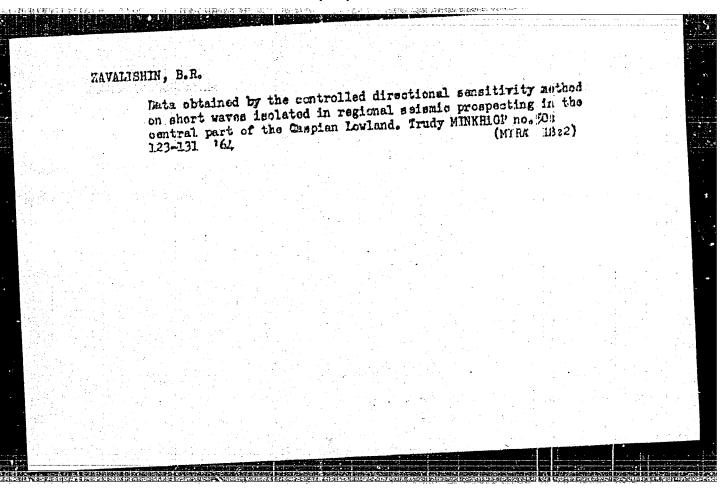
[Chairman of collective farms speak about their experiences] Predsedateli
kolkhozov o svoem opyte [Tula] Tul'skoe knizhnoe izd-vo, 1556. 79 p.

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ZAVALISHIN, D.A.; NOVIKOVA, Q.I., inzh.; CHZHEN BIN-QAN [Cheng Ping-kang],

Kand.tekhn.nauk

Transistorized frequency converters for regulating the angular
velocity of asynchronous motors. Elektrichestvo no.1137-44
N '62.

1. Institut elektromekhaniki AN SSSR. 2. Chlen-korrespondent
AN SSSR (for Zavalishin).
(Electric motors, Induction) (Frequency changers)

ZAVALISHIN, Dr. D. A.; BENGER, Frof. A. Ya. CHEGRYAVSKIY, DOCENT F. I.;

CHEGRYAVSKIY, DOCENT F. I.; YAKUBOVSKIY, V. Ya.

Electric Fachinery - Testing

L. H. Pyotrovskiy and Ye. A. Pal's book "Testing electrical machines."

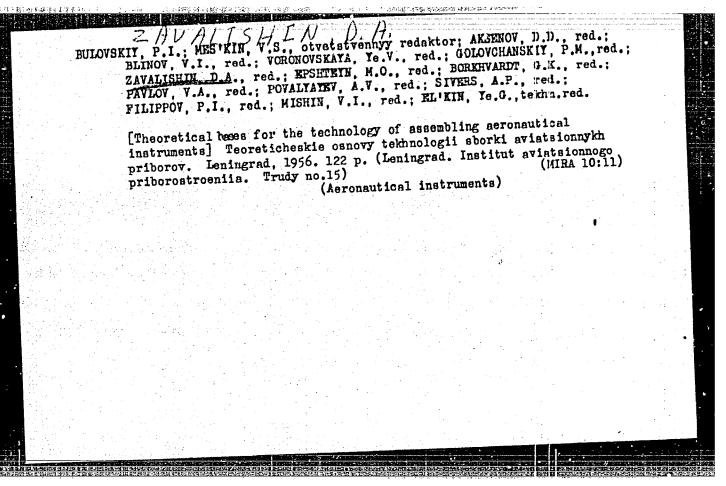
Prof. A. Ya. Berger, Docent F. I. Chernyavskiy, Eng. V. Ya. Yakubovskiy, Prof. A. Ya. Zavalishin, and others. Elektrichestvo No. 5, 1952.

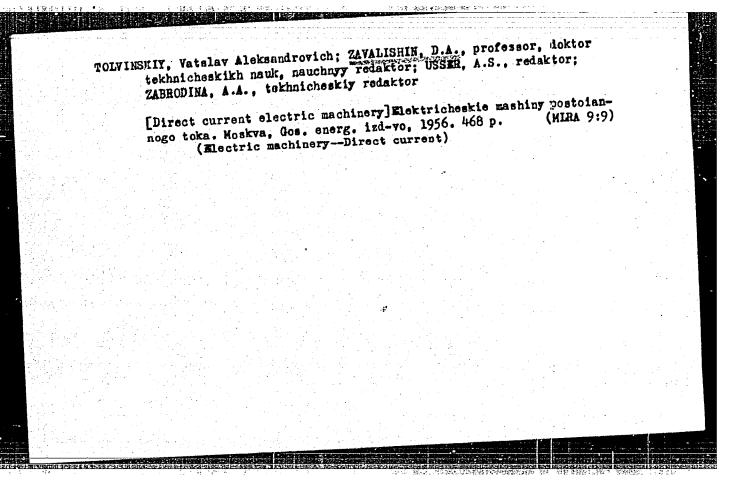
Dr. D. A. Zavalishin, and others. Elektrichestvo No. 5, 1952.

Monthly List of Russian Accessions, Lábrary of Congress, November 1952. UNCLASSIFIED.

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"State of Amplidyne Scietific	and Tasks in , and Electr Problems of	n the Devel on-Ion Cont Production	opment of rol." s p	Electric oper give on, Mosco	ctric Drives With Frequency given at the Conference on Moscow State U. 15-20, Oct			
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<b>50</b>	(Electric genera	tors)		•

2 AVALISHIN, D. H. 110-12-17/1 AUTHOR: Kostenko, M.P., Academician, Zavalishin, D.A., Professor, 110-12-17/19 and Glebov, I.A., Dotsent. On the Control of Reactive Power by Means of Controlled Valves (O regulirovanii reaktivnoy moslichnosti pri pomoshchi TITLE: upravlyayemykh ventiley) PERIODICAL: Vestnik Elektropromyshlennosti, 1957, Vol.28, No.12, pp. 65 - 71 (USSR). ABSTRACT: This article constitutes discussion of the article by Venikov, Tsov'yanov and Khudyakov entitled "New Sources of Reactive Power that Can be Used to Improve the Utilisation of Generators and Synchronous Compensators", published in this number of the journal. The present article gives the results of theoretical and experimental investigations of the main properties of rectifier and rectifier-inverter installations with series-connected capacitors as sources of reactive power. Experimental investigations were made on the ionic converters of the electro-dynamic model of the Institute of Electro-

Mechanics of the Ac.Sc. USSR. A rectifier with condensers in series, with the d.c. circuit made through a reactor is similar in properties to a circuit consisting of a capacitor in series with a variable inductance. A limiting condition of operation

Cardl/6is given in Fig.1, which presents currents and voltages in a

On the Control of Reactive Power by Means of Controlled Valves.

rectifier with a series-connected capacitor. The experimental equipment is described and the calculated voltage and current curves given. They are shown to be in good agreement with the experimental curves. Certain fundamental difficulties in controlling a circuit of certain fundamental difficulties in controlling a circuit difficulties and circuit difficultie

this kind are described. The authors of the article under discussion have arrived at wrong conclusions about the amount of power required for control, and the reasons for this are explained with reference to the oscillograms in Figs. 4 and 5

of the present article.

A rectifier with series capacitors has a minimum reactive power, so that for smooth control to zero capacitative current compensating reactors must be provided. Very high reverse voltages will occur on the valves under certain conditions. The power that it is necessary to instal is considered closely and shown to be much greater than the previous authors supposed. It could be reduced by providing other methods of compensation for normal conditions and using the rectifier installation only for transient and fault conditions. Unfortunately, the disadvantages of the circuit then appear most clearly. The merits of using a

of the circuit then appear most clearly. The marrow of double card2/6 rectifier with a capacitor in series therefore requires further

On the Control of Reactive Power by Means of Controlled Valves.

study, particularly with ignition angles close to 90°. In the inductive condition the current can be regulated smoothly from zero, but smooth transition from the one condition to the other is not possible. However, the proposed circuit appears to have certain advantages, and in particular, low inertia. It is stated that rectifier-inverter installations with series capacitors can only work with a capacitative load if the transformers have a fixed ratio. The limitations that this introduces are explained. The rectifier-inverter circuit has the same general properties as the rectifier circuit: there is a minimum capacitative current; when the reactive power output is increased the utilisation of the static condensers is decreased and smooth transition from capacitative to inductive current is not possible. The circuits differ in that the rectifier-inverter circuit can reduce the limiting value of the capacitative current by circulating active power. However, this circulation of active power impairs the utilisation of the static capacitors, as is shown in Fig.8. Thus, the rectifier-inverter circuit offers no advantages and is not recommended. It is considered that the subject requires further study.

The article is followed by brief contributions to discussion on

card3/6the same paper, as follows:

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On the Control of Reactive Power by Means of Controlled Valves.

Dozent N.A. Mel'nikov of the All-Union Correspondence Power Institute (Vsesoyuznyy Zaochnyy Energeticheskiy Institut) considers the article interesting and important but thinks that no new sources of reactive power have been proposed, since only synchronous compensators or static capacitors have been considered. The article devotes insufficient attention to considerations of harmonics. The proposal to use induction generators in power stations will not find favour, if only on grounds of cost. Particular attention should be paid to the possible use of automatic control of static condensers and reactors with controlled valves. Candidate of Technical Sciences Ye. Ya. Kazovskiy of the Elektrosila Works (Zavod "Elektrosila") considers that the equipment will be larger and more expensive than the authors think. Doctor of Technical Sciences, Professor Kh.F. Fazylov of the Energetics Institute Ac.Sc. Uzbek SSR (Institut Energetiki AN Uz SSR) thinks the article important, especially concerning automatic control of static capacitors. However, he raises various objections to the circuits proposed and feels in particular that they will give rise to harmonics. He considers that Card4/6 it would be premature to recommend apparatus of this kind as

110-12-17/19

On the Control of Reactive Power by Means of Controlled Valves.

major means of generating reactive power. Doctor of Technical Sciences, Professor D.A. Gorodskiy of the Scientific Research Institute of the Electro-technical Industry (NII EP) believes that the cost of the equipment will prevent its use and that maintenance will be complicated. Doctor of Technical Sciences, Professor V.G. Kholmskiy and Candidate of Technical Sciences I.M. Chizhenko of the Kiev Polytechnical Institute (Kiyevskiy Politekhnicheskiy Institut) consider that the authors have raised some very pressing questions which need solution. Similar problems will arise in d.c. The schematic diagram proposed by the authors is ingenious and promising, but muchwork will have to be done to analyse and develop the new circuits. It will be important to make capacitors cheaper and more reliable. Candidate of Technical Sciences, L.G. Mamikonyants of the TENTEL MES considers that the paper raises problems that are urgent in connection with the construction of long-distance transmission lines, but that it has a number of defects and leaves many important questions untouched. It does not indicate the problems most in need of further development. The work Card5/6 should be supported by laboratory test data. Although valves

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On the Control of Reactive Power by Means of Controlled Valves:

are of lower inertia than rotating machines, they do not have the same advantageous reservoir of energy stored in rotating masses.

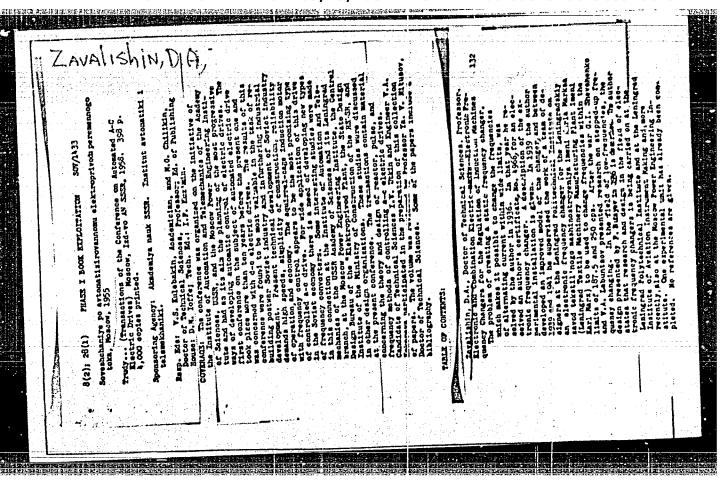
Candidate of Technical Sciences L.V. Tsukernik of the Ac.Sc. Ukrainian SSR (AN USSR) considers that valve switching of high-power electrical circuits using grid control has many other applications. For example, it should be possible to control effectively the braking load of generators in large remote power stations. The schematic circuit given by the authors will undoubtedly work, but further technical and economic comparison with other methods of achieving the same object is required. Some of the circuits are not sufficiently explained. There are 8 figures.

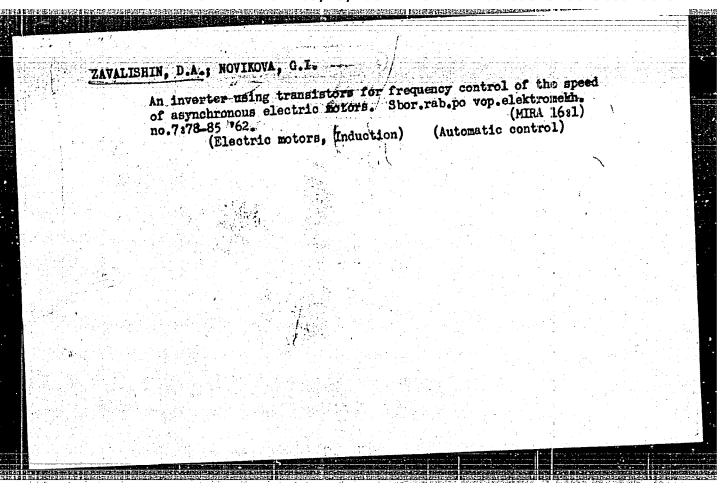
ASSOCIATION: Institute of Electro-Mechanics of the Ac.Sc. USSR

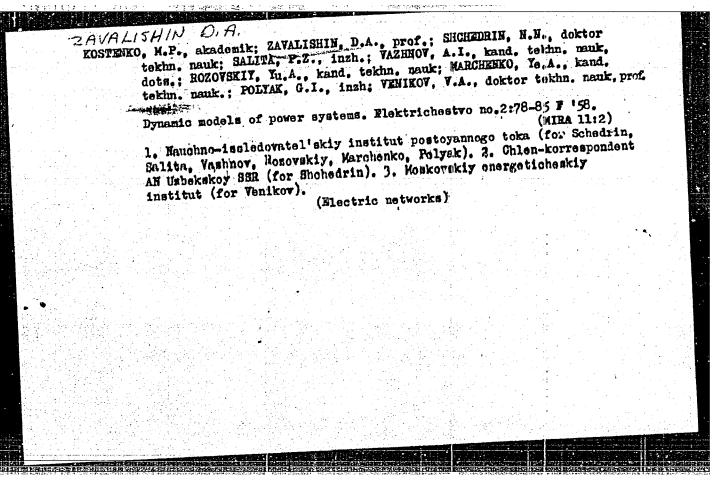
(Institut Elektromekhaniki AN SSSR)

AVAILABLE: Library of Congress.

Card 6/6







AUTHORS:

Kostenko, M.P., Alekseyev, A. 7c., 30W105-58-7-30/52

Lyuter, R.A., Zavaliahin, D. A.

Gnedin, L. P., Britain, M. L.

TITLE

Leonid Nikolayevich Gruzov (Deceased)

PERIODICAL:

Elektrichestvo, 1958, Nr 7, pp. 93-93 (USSR)

ABSTRACT:

Professor Leonid Nikolayevich Gruzov, Doctor of Technical Sciences, Engineer-Colonel, Head of the Kafedra elektropitaniya ustanovok svyazi Voyennoy krashoznamennoy akademii svyazi (Department of Electric Supply of Telecommunication Equipment at the Krasnoznamennaya Military Academy of Telecommunication) a prominent expert in the field of electric machines, died on October 17<sup>th</sup>, 1957, at the age of 51. He graduated with distinction from the Donskoy politekhnicheskiy institut (Don Polytechnical Institute) in 1927, was then aspirant at the Leningradsky politekhnicheskiy institut (Leningrad Polytechnical Institute), assistant, and finally docent at the same institute. He combined his scientific and pelagogical activity with that of an engineer. He published a series of papers on the transient modes of operations of electric machines and of power supply systems.

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Leonid Nikolayavioh Gruzov

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He worked as engineer in the "Elektrosila" works as well. He took part in World War II. In 1947 he took his degree as Doctor of Technical Sciences. He developed a method for the investigation of electric machines. He was first head of the Department of Theoretical Electrical Engineering, then the Department of Electric Supply Flants at the Military Academy of Telecommunication. He published more than 30 scientific papers, textbooks and manuals. There is 1

1. Scientific personnel--USSR

Card 2/2

SOV/24-58-8-13/37 Zavalishin, D. A. (Leningrad) New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and AUTHOR: Generators with Ionic Commutators (Novyye sistemy TITLE: preobrazovaniya chastoty peremennogo toka pri pomoshchi elektronno-ionnykh preobrazovateley i generatorov s PERICDICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 8, pp 81-87 (USSR) In spite of the fact that work on ion-machine systems intended for continuous transformation or stabilisation of a.c. frequency has been in progress for many years, so ABSTRACT: far only results of theoretical work and of small-scale leboratory circuits are available but not of industrial-scale installations. This is due to the complexity of the arrived at solutions, the large size of the equipment and also the insufficient reliability of the electron-ion circuits under regimes which occur during frequency transformation. However, solutions of the problem of frequency transformation have been outlined which may lead to serviceable installations. Card 1/11 An electron-ion frequency transformation circuit, continuous variation of the a.c. frequency, permitting

SOV/24-58-3-13/37 New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and Generators with Ionic was designed by the author of this paper as long ago as 1934-1937 at the Leningrad Polytechnical Institute for Commutators the purpose of controlling the speed of an asynchronous motor with a short-circuited rotor. The apparatus contained 18 thyratrons for a motor rating of merely 150 W. It proved possible to transform by means of this equipment the primary frequency of 50 c.p.s. into a secondary frequency varying between 5 and 60 c.p.s., whilst simultaneously varying the voltage applied to the asynchronous motor in accordance with a law derived by M. P. Kostenko (Ref 2). The circuit included condenser switching and for ensuring stable operation it was necessary to increase the capacitance of the condensers for lowering the secondary frequency. The capacitances for frequencies below 15 to 20 c.p.s. were so large that it proved impracticable to use such switching in industrial installations. In his dissertation "Fundamental Properties of an Independent Invertor with Capacitance Switching and Card 2/11Additional Valves" E. U. Umarov (SPI, 1955) described a

SOV/24-58-8-13/37 New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and Generators with Tonic circuit which requires so many additional ionic valves that Commutators the number of tubes in the invertor part is doubled; his circuit contains 2 or even 4 (in the case of a bridged circuit) series-connected tubes. The presence of a large number of such series-connected tubes reduces the efficiency of the circuit. In spite of that, thi In spite of that, this the efficiency of the circuit. In spite of that, this circuit is worth paying attention to, particularly the variant proposed by V. F. Shukalov. A second solution was arrived at by IEM, Ac.Sc. USSR where a system was developed containing combined switching of the current. This system is particularly suitable if it is necessary to the constant of allowated primary fractions of 200 to 400 cm. transform an elevated primary frequency of 200 to 400 c.p.s. into a secondary frequency which can be varied between 5 and 70 c.p.s. The experimental ionic transducer built on this principle was produced by IEM for exciting a compensated generator of the system proposed by Academician M. P. Kostenko. This equipment was used as a powerful electro-machine amplifier in a circuit for Card 3/11frequency speed regulation of asynchronous motors. The

New Systems for Transforming the Frequency of Alternating Current by Moans of Electron-Ion Transducers and Generators with Ionic

basic source of energy was a single-phase generator
supplying current at 400 c.p.s. The circuit diagram of
supplying current at 400 c.p.s. The circuit diagram of
supplying current at 400 c.p.s. The circuit diagram of
supplying current at 400 c.p.s. The circuit diagram of
supplying current at 400 c.p.s. The current on valves
is given in Fig.l. It contains 12 electron-ion valves
is given in Fig.l. It contains 12 electron-ion valves
connected into six separate groups, each of which is
connected to a smoothing reactor, all the three windings
of which are on a single core. The centres of these
of which are on a single core. The secondary busbars
windings are connected to the secondary frequency busbars
and to the switching condensers. The secondary busbars
and to the switching condensers. The secondary currents can be
influencing the grid voltage any of the tubes can be
influencing the grid voltage any of the tubes can be
influencing the grid voltage any of the tubes can be
current through the tubes that the law of variation of
the transformed secondary currents and voltages should
correspond to that of three-phase s.c. at any secondary
frequency. The sequence of passage of the current
frequency. The sequence and the current consuming

New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and Generators with Ionic Commutators

windings are shown in Fig. 2. The curves of the outed in in the individual phases during switching are plotted in Fig. 3, assuming thereby an instantaneous change in the current values. As was mentioned earlier, switching of the tube currents by the condenser e.m.f. can be effected only for frequencies not lower than 15 to 20 c.p.s. it is However, at frequencies lower than 15 to 20 c.p.s. it is possible to utilise the primary voltage. This switching is based on the principle that at low secondary frequencies the period is many times that of the primary voltage and, therefore, it is always possible to fit a voltage and, therefore, it is always possible to fit a whole number of half-cycles of the primary voltage into whole number of the secondary voltage and to extinguish one half-cycle of the secondary voltage and to extinguish the thyratrons by removing the positive impulses from the grids and feeding such impulses onto the grids of the grids and feeding such impulses onto the grids of the will proceed at the instant of passage of the current will proceed at the instant of passage of the current will proceed at the instant of passage of the current will proceed at the instant of passage of the current will proceed at the instant of passage of the current will proceed at the instant of passage of the current will proceed at the instant of passage of the current switching condensers at frequencies below 15 to 20 c.p.s.

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However, this cannot be achieved if there is an intermediate direct current system, since there only condenser switching of the invertors is possible. The voltage curves of the primary circuit and the resulting curve of the secondary voltage are graphed in Fig.5. The of the secondary voltage will vary from half-cycle to average primary voltage will vary from half-cycle to half-cycle and the secondary voltage will increase during the the first half of the half-cycle and decrease during the second half. By applying an appropriate law of changing the cutting off of the voltage, the secondary voltage can be made to approach the sinusoidal shape. A sliding cutoff voltage also permits passage of reactive current through the circuit. For this purpose it is enough to reduce the voltage during the first quarter of the cycle and operate during the second quarter of the cycle with a negative voltage, letting the current flow in the same direction as a result of the e.m.f. of the induction of the external circuit. The voltage curves within the

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New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and Generators with Ionic Commutators

have a shape as shown in Fig.6; instead of a lagging current a leading current will be obtained. For producing such a sliding cut - off I.E.M., Ac.Sc., USSR developed an electronic control circuit as shown in The circuit comprises two thyratrons which supply one half wave of the transformed voltage into one phase of the secondary circuit. In Fig. 8 an oscillogram is reproduced, obtained for an experimental set-up feeding an active load without a commutator. The secondary voltage of the frequency transformer can be changed by changing the primary voltage; thereby, the voltage of increased frequency which feeds the grid circuits must remain unchanged and, therefore, the grid circuit has to be fed from a separate small generator which is rigidly coupled with the main generator. A second possibility of regulating the voltage consists in displacing the phase of the voltage feeding the grids relative to the anode voltage and thereby varying the average value of Card 7/11the primary voltage during a half-cycle. This method is

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> inappropriate. The theoretical assumptions were confirmed in the experimental investigation of the frequency transformation circuit designed by IEM. Fig.9 an oscillogram is reproduced for the case of feeding the reactor of the phase displacement bridge with a frequency of 10 c.p.s. The oscillogram was obtained in absence of a switching capacitance and in absence of a resistance. In Fig. 10 an oscillogram is reproduced taken at the same frequency. However, in this case the excitation winding of a commutator generator was a current consuming device. Fig. 11 contains the same curves for a frequency of 30 c.p.s. and presence of a switching capacitance; in this case the voltage and the current curves were of sinusoidal shape. In the last part of the paper generators with electron-ion commutation are described. The advantage of such commutation is the possibility of obtaining very rapid changes in the magnitude of the rectified voltage by acting on the

Card 8/11 control grids of the tubes. Due to this feature, such

#### CIA-RDP86-00513R001963920019-1 "APPROVED FOR RELEASE: 03/15/2001

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circuits can be useful in systems of excitation of powerful synchronous machines which feed the current into long transmission lines and where it is necessary to act very rapidly on the excitation circuits for the purpose of maintaining the system stability. An electron-ion commutator can be applied not only for obtaining direct current but also for obtaining a.c. of any frequency irrespective of the speed of rotation of the rotary generator, particularly for obtaining a fixed frequency in the case of a variable speed of the rotor. The design of such machines is based on the circuit of the compensated commutator generator with a metallic commutator as proposed by M. P. Kostenko (Ref 3). Such a generator can supply an alternating current of a constant frequency at a variable speed or a current of variable frequency at a constant speed of lotation of the The same properties can also be reached by substituting the mechanical, metallic commutator by Card 9/11 electronic commutation, the advantage of which is that a

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higher voltage can be obtained and there is no possibility of sparking. Such a machine is very much simpler than a machine with a metallic commutator, since from the design point of view it can be considered as an asynchronous machine with a wound rotor. variant of such a generator with an electronic commutator is shown in Fig. 12; the generator is rotated by means of a prime mover (asynchronous motor) and is fitted with three windings: the excitation winding fed from an independent excitation source which fixes the frequency of the output voltage and supplies the magnetising current, a compensation winding connected in series with the rotor winding via the electron-ion commutator which consists of two groups of tubes connected in a bridge ci\_cuit. The two bridge circuits are series-connected and permit, by means of an intermediate direct current circuit, to link the rotor winding in which the emf of the slip frequency is generated with the compensation winding which has the emf of the frequency of the excitation which has the tubes of the bridge circuits.

Card 10/llnetwork; the tubes of the bridge circuits are grid-

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New Systems for Transforming the Frequency of Alternating Current by Means of Electron-Ion Transducers and Generators with Ionic Commutators

controlled. The features of such a circuit are discussed. Experimental investigation of the steady-state regimes of such a circuit have confirmed the theoretical assumptions on the possibility of building a compensated generator with an electronic commutator which will permit widening the range of frequencies and voltages as compared to machines fitted with mechanical commutators. Such a "semi-conductor commutator" will provide new possibilities for building d.c. and a.c. generators. This paper was presented at the Scientific Session of the Technical Sciences Section, Ac.Sc., USSR, devoted to the 40th anniversary of the October Revolution.

There are 13 figures and 3 Soviet references.

SUBMITTED: September 13, 1957

1. Alternating currents—Control systems 2. Frequency—Control 3. Frequency convertors—Equipment 4. Frequency convertors—Performance 5. Electric circuits—Design

Card 11/11

AUTHORS:

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TITLE:

Synchronous Condensers for Long-Distance Transmission Systems

(Sinkhronnyye kompensatory dlya dal'nikh elektroperedach)

PERIODICAL:

Elektrichestvo, 1958, Nr 1o, pp 43 - 47 (USSP)

ABSTRACT:

This is a study of problems of design of synchronous condensers connected with the elimination of selfexcitation of such generators in various modes of operation. Inasmuch the investigation of two boundary cases of damper system design is of interest, that is to say, of a normal design and of a connected type of winding, this paper is limited to compensators with

salient poles with only one type of rotor. The computations presented in this paper demonstrate that non-compensated supporting condensers, which are intended for continuous duty at rated power with lagging current can be built on

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the basis of conventional machines with very high power (75 MVA). In order to be able to obtain a considerable output with leading current, the compensator must operate with negative excitation currents. 2) must operate with negative excitation currents. 2) must operate with negative excitation currents. 2 an apporting synchronous condenser which is compensated apporting condensers can be condensers. 3) Compensated supporting condensers can be continuously operated ar rated power with lagging continuously operated ar rated power with lagging and with leading current. 4) In order to guarantee and with leading current. 4) In order to guarantee synchronous condensers an increased ceiling voltage synchronous condensers an increased ceiling voltage synchronous condensers an increased condensers of excitation is required. In compensated condensers a similar behaviour is guaranteed by normal exciters. There are 4 figures, 2 tables, and 5 references, 4 of which are Soviet.

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SOY/105-58-10-10/28 Synchronous Condensers for Long-Distance Transmission Systems

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SOV/24-59-2-14/30

AUTHORS: Zavalishin, D. A., Mikhaylov, A. K. (Leningrad)

TITLE: Conversion of Direct Current into Alternating Current by Means of a Contact-Type Converter (Preobrazovaniye postoyannogo toka v peremennyy pri pomoshchi kontaktnogo preobrazovatelya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekinicheskikh nauk, Energetika i avtomatika, 1959, Nr 2, pp 93-98 (USSR)

ABSTRACT: An attempt is made to give a qualitative analysis and some results of an experimental investigation of a mains-controlled converter which operates as an inverter. The transition from the rectification regime to the inversion in a contact-type converter can be done in two ways: (1) by changing the direction of the direct current in the circuit while the polarity of the voltage of the generator and the load is unchanged during the operating part of the period; (2) by changing the polarity of the voltage during the operating part of the period, while the direct of the current is unchanged. The first method appears to be impracticable due to the arcing of the contacts. A three-phase bridge—type converter can be constructed in the manner illustrated in Fig 1, where: (1) m is a 3-phase transformer; (2) D ,

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D<sub>b</sub> and D<sub>c</sub> are saturated chokes of the phases A, B and C; (3) OF are magnetizing windings of the chokes; (4) k<sub>al</sub>, k<sub>bl</sub> and k<sub>cl</sub> are "cathode" contacts; (5) CD is a smoothing choke, and (6) R<sub>h</sub> is a ballast resistance. The operating choke, and (6) R<sub>h</sub> is a ballast rectification regime The waveforms of Fig 2a illustrate the rectification regime The waveforms of Fig 2b shows the inversion operation by of the device, while Fig 2b shows the inversion operation by employing the first method. Fig 2v explains how the inversion is achieved by the second method. The transition from the rectification to the inversion by means of the second the rectification to the inversion by means of the rectified voltage can be controlled by varying the regulation angle α (see Fig 1) from 0 to 90°; the rectified voltion angle α (see Fig 1) from 0 to 90

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of supplying it. The converter thus becomes a mains-controlled inverter which supplies power from the d.c. source to the a.c. mains. A successful inversion can be achieved by fulfilling the following requirements: (1) the regulation angle α of the following requirements: (1) the regulation angle α of the converter should be variable from 0 to 180°; (2) the phases of the magnetizing currents in the chokes of the bridge circuit (see Fig 1) should be adjustable with respect to the voltages of the transformer; (3) the voltage of the d.c. source should be adjustable in magnitude and polarity. The operation of the mains-controlled controlled contact (commutator) inverter is essentially similar to that of a contact rectifier, except that the angle β has a certain minimum value which must be strictly observed. The authors carried out an experimental investigation of an inverter of the type shown in Fig 1. The system operated up to 60 kW and had the primary alternating voltage of 500 V. The d.c. source had a potential of 300 V. The experimental investigation fully corroborated the theoretical prediction. The experimental results are illustrated in Figs 5 and 6. The solid curves of Fig 5 illustrate the dependence of the inverted voltage Ug on the load current

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dash-dot curves give the useful load power. Fig 6 illustrates the dependence of the power factor  $\cos \phi$  and efficiency  $\eta$  on the load current  $I_{g\beta}$ . It is seen that  $\eta$  is almost constant when the load changes from 100 to 25%. There are 6 figures.

ASSOCIATION: Institut elektromekhaniki, AN SSSR (Institute of Electromechanics of the Academy of Sciences of the USSR)

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